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ETHNOLOGY

AN INTERNATIONAL JOURNAL OF CULTURAL AND SOCIAL ANTHROPOLOGY

July, 1962 Volume I Number 3

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UNIVERSITY OF PITTSBURGH PRESS

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Ethnography for Archeology: A Case from the Seri Indians[1]

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121 Any case for close association among the branches of anthropology would surely include weighty arguments developed from comments on the relationship of ethnology and archeology. In one of his last collections of papers A. L. Kroeber (1957: 193) depicts interdependence of the two in terms of ultimate goals:

> It has become clear that in this matter of a reconstruction of the larger and long-range movements or developments in global human culture, the ethnographer or ethnologist needs the help of the archaeologist. The ultimate purposes of the two are the same: to discover the history or evolution of culture; but their instruments and methods are quite different. . . . The two approaches supplement each other so gratifyingly because they approach a common purpose with quite distinct methods.

In certain obvious areas archeology draws on general ethnographic information. The most elementary notions about behavior in ongoing nonindustrial communities form the implicit basis for all thinking about behavior founded on archeological evidence. From the vista of the urban mid-twentieth century, for instance, it would be difficult to imagine what existence was like in communities with but a single occupational specialty if it were not for ethnographies on food-gathering populations. Yet archeologists have expressed doubt concerning the utility of ethnography for archeology. What is the basis for this doubt?

By definition, archeological data consist of the results of human behavior. The initial objective of archeology is to reconstruct behavior from its results. In accomplishing this objective, the archeologist turns to descriptions of behavior and its products, where the products are similar to those which he excavates. Thus, by moving from the results of actions to actions which are known to yield similar results, it becomes possible to make statements about behavior in the absence of direct observation. To operate with this logic in such a way that the behavioral statements based on archeological data are reasonable, the correspondence between the results of observed behavior and archeological data must be high. The principal source for relevant descriptions is thought to be ethnography. Yet it is argued (Kleindienst and Watson 1956: 76) that ethnography is inadequate for archeological purposes because the literature describes either "ideal types without description of range of variation" or detailed material items without behavioral correlates, or because it describes no material items, i.e., no results of behavior.

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Elsewhere (Ascher 1961) I have disputed this portrayal of the potential of existing ethnography, citing examples where qualitative and quantitative models have been constructed from ethnography and suggesting that one task for archeology is to codify the literature in a manner useful to itself. Regardless of doubts about existing ethnographies for archeological purposes, the worth of future ethnography for archeology will depend on the acquisition of the relevant kinds of information. Although discussion on the subject has been recorded (Tax *et al.* 1953: 229-232), no specific guides have been produced. This paper provides and discusses an example, which can be used as a paradigm, model, or guide of the kind of information to be collected from ongoing communities which would be of general value for archeology. The subject culture is that of the Seri Indians of Sonora, Mexico; the example describes a persistent trait complex associated with fishing for the Pacific green turtle, with particular emphasis on one trait in the complex, the harpoon foreshaft.

Example from the Seri Indians

The Seri, who numbered approximately 200 individuals in 1960, occupy a band of coastal desert about four miles wide and seventy miles long in the state of Sonora in western Mexico. The band extends along the Gulf of California from Kino Bay in the south to Desemboque in the north, opposite the largest island in the Gulf, Tiburon. Although the region is desert, with an estimated average rainfall of less than eight inches per year, falling mostly in July and August, it is comparatively rich in succulents and small land mammals. The Gulf forms a natural trap for large fish and marine mammals and is a breeding ground for the Pacific green turtle. The scantiness of fresh water has constituted, in the past and present alike, the single crucial limiting factor to agriculture and human occupancy.

In the past the Seri may have comprised from four to six tribal groups, and they were certainly numerically larger, with a maximum estimated population of 2,000 (Kroeber 1931: 53, 30). Until very recently they also occupied Tiburon Island, and at some more remote period they extended south, north, and east over a territory whose bounds are uncertain (Kroeber 1931: 5). On the basis of linguistic change, Kroeber (1931: 54) calculated that the Seri could have inhabited this general region for 1,000 years. It is uncertain whether the original occupation stemmed from Baja California via the Gulf of California or from the north and west via an overland route or routes (Kroeber 1931: 39-51). The first contact with Europeans occurred as early as 1540 (McGee 1898: 51).

In culture content the Seri are most closely affiliated with the Pima (Kroeber 1931: 51), but they do not share the practice of agriculture with them or with their western neighbors. The Seri are primarily fishermen; secondarily they gather the fruits of succulents; and to a still lesser extent they hunt game. McGee (1898: 214)

McGee (1898:214)

estimated that maritime resources provided two-thirds of the Seri diet. Kroeber (1931: 20), approximately 30 years later, estimated the proportion at about three-fifths. In the winter of 1960, 30 years after Kroeber's visit, the Seri were obtaining at least three-fifths of their food from the sea.

In pursuit of their main source of subsistence, the Seri travel up and down the narrow coastal band. In the winter of 1960 they were occupying one temporary camp toward the southern end of the band and a permanent camp at the northern extreme. Seri women and children gather mollusks; fishing is a male occupation. In addition to gathering and fishing for their own needs, the Seri dispose of a portion of their catch on the commercial market. This enterprise began about 1930, and was encouraged by the establishment, in 1958, of the Sociedad Cooperative de Produccion Pesquera Seri with the cooperation of the Mexican government.

The Pacific green turtle constitutes the largest single item in the Seri diet for at least six months of the year—from January to June—and it is also caught occasionally at other seasons. In 1896 McGee estimated that it provided 25 per cent of the total food supply. Emphasizing the intimate ecological relationship between the Seri and the turtle, McGee (1898: 186-187) wrote:

> ... perhaps half of the aggregate life of the tribe is spent within easy reach of its [the turtle's] feeding and breeding grounds, and tribesman and turtle have entered into an inimical communality something like that of the Siouan Indian and buffalo in olden time. ...

Kroeber (1931: 20) believed that McGee stressed the Seri-turtle relationship too strongly and overestimated its contribution to the diet. McGee (1898: 187), in support of the importance of the turtle to the Seri, points to the fact that the turtle carapace is used for, among other things, a house covering and buckler, a cradle, a coffin, and footgear. The carapace is currently used for supporting and roofing houses and as a starvation food. The contribution of the turtle to the diet varies from year to year, but observations made in 1960 suggest a range of from 15 to 20 per cent as a reasonable estimate.

Seri men fish for turtle from boats, which are manned by two or three men and are propelled by oars, sails, outboard engines, or any combination of the three. The boats operate either individually or in groups. The men fish by night or day, depending on the weather and sea conditions. When they fish at night, they use a kerosene lamp to attract turtles to the surface. The principal implement is the harpoon.

The harpoon tackle of the Seri is illustrated in Figure 1. It consists of a foreshaft (c-h), a mainshaft (j-k), and an extension cord (i). The component parts of the foreshaft are a projectile point (c), a gasket (d), a wrapping cord (f), a hafting base (g), and a lead cord (e and h). In preparation for turtle fishing, the hafting base (g) is plugged into the socket (j) on the main shaft (k), and the extension cord (i) is looped through the lead cord (h).

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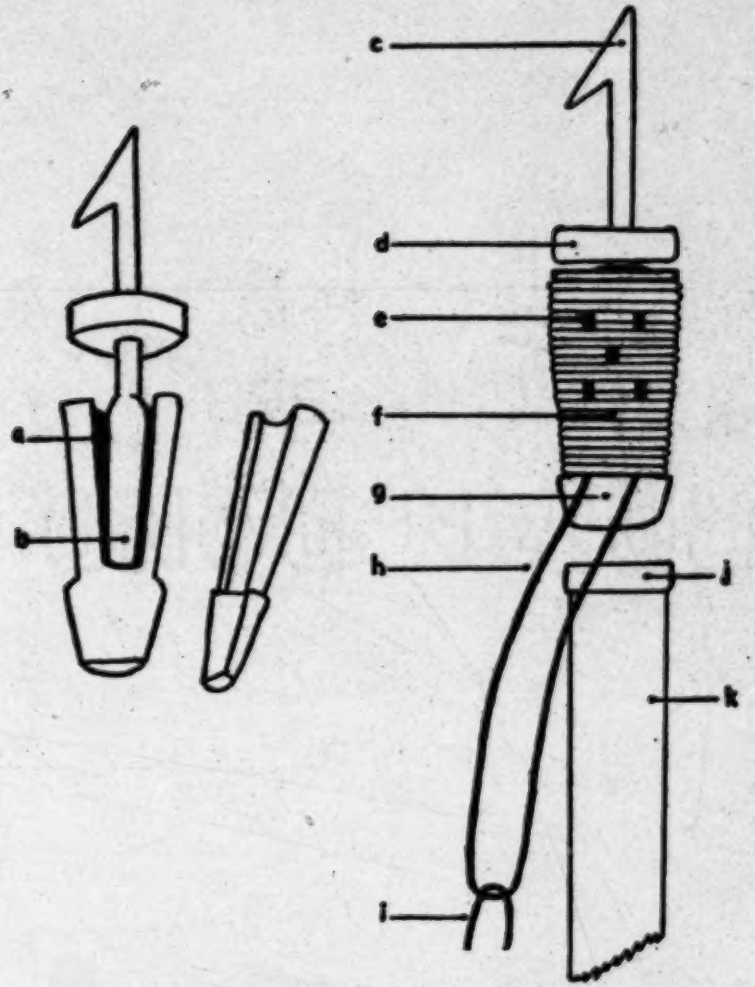
Figure 1. Seri Harpoon Toggle



a Mesquite gum sealing
b Point base
c Point barb
d Gasket
e Lead cord interwoven with wrapping cord
f Wrapping cord
g Hafting base
h Lead cord
i Extension cord
j Mainshaft socket
k Mainshaft

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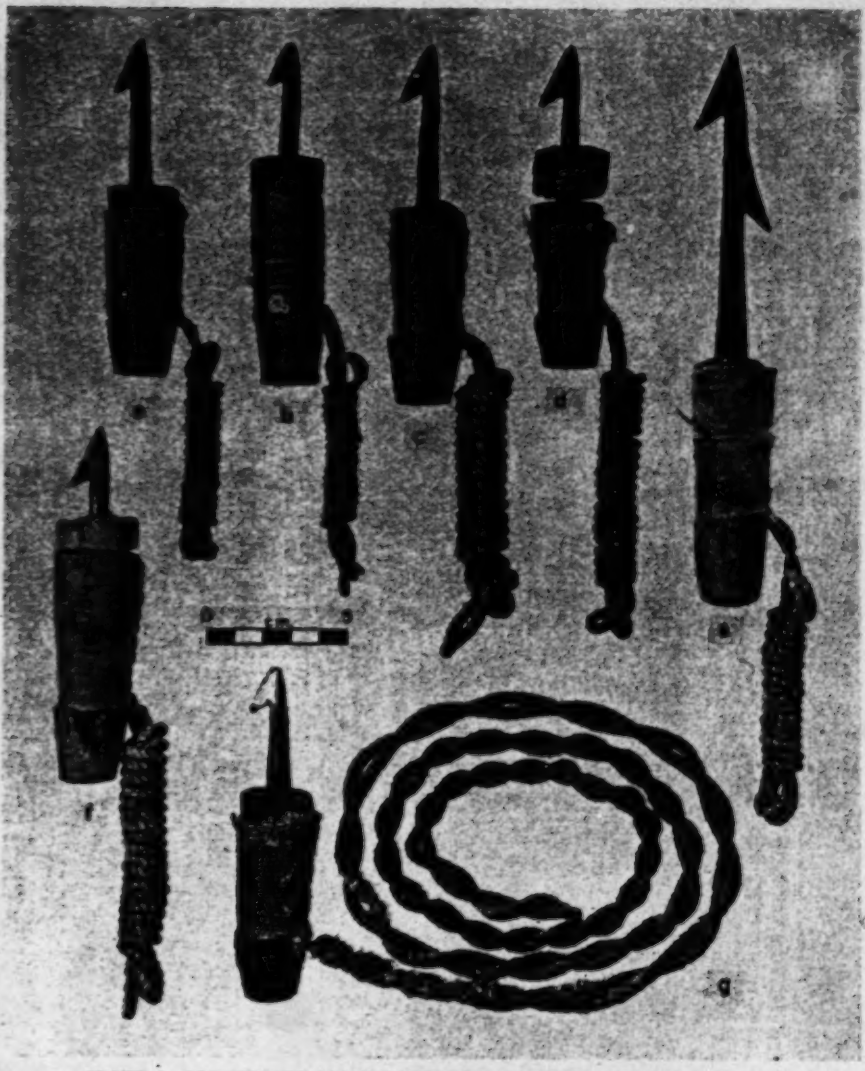

PLATE 1: FORESHAFTS MANUFACTURED BY SEVEN SERI FISHERMEN
(see Table 1 for specifications) A

[facing page 364]

A [Table 1 is on page 367, category 116: Analyst]

225 In fishing for turtle, one man stands at the bow of the boat, holding the mainshaft and extension cord in one hand. When he sights a turtle, he propels the mainshaft at the animal's carapace, retaining a firm grip on the mainshaft and the extension cord. If it is struck, the turtle lurches away, loosening the foreshaft and unplugging it from the mainshaft. Tired eventually by the tension [411] applied by the fisherman on the extension cord, the turtle is finally stunned by a wooden club and lifted into the boat.

225 There is evidence that the turtle-fishing complex has consider-175 able time depth and stability. The Seri were using similar apparatus and methods at least as early as 1825 (Hardy 1829: 296-297). At [501] this time they employed balsa boats rather than wooden boats with outboard motors and torches of cactus fibers instead of kerosene lamps. The complex continued, apparently with little change, through 1896 (McGee 1898: 187-193). Wooden boats and kerosene [177] lamps began to be adopted during the 1920s, and outboard motors were introduced in the 1940s.

411 During the entire period of 135 years (1825-1960), however, the 225 harpoon tackle underwent only one important innovation. The 176 gasket on the foreshaft was introduced by a Seri Indian about the year 1935. The addition of the gasket was related to, and coincided [439] in time with, the first attempts of the Seri to supply turtles to the commercial market. When they caught turtles solely for their own use, they did not need to keep the animals alive for very long, but when they began to sell them it became important to preserve them alive until they reached the market. The gasket acts like the hilt on a sword, preventing the entrance of the foreshaft hafting into the turtle's body. Through its contact with the carapace, it restricts the rotation of the point within the animal's body and provides a seal which inhibits the loss of blood, and thus prevents early death. After the turtle is stunned with a club and lifted into the boat, the foreshaft is removed and the hole which it made is stuffed with a piece of cloth.

124 Seri men were shown a harpoon foreshaft from a museum archive and asked what it was for and whether they themselves made similar 411 ones. If an informant acknowledged that he made them, he was asked, at the minimum, to detail the materials he used, the procedures he followed, and the approximate amount of time it would take him to produce one. Later he was requested to show the field worker examples of the foreshafts he had made. Of the approximately 40 adult Seri males, about 25 were available for questioning. Of these, approximately ten did not make foreshafts or had made them in the past but did so no longer; they were mainly older men and those [474] engaged in the administration of the Sociedad Cooperative de Pro-[887] duccion Pesquera Seri. Five men either would not or could not volunteer information. Data were obtained from the remaining ten adult men and from one eight-year-old boy; they include 21 foreshafts made by these eleven people.

411 The materials from which a foreshaft can be shaped and as-325 sembled vary within what is available in the Seri environment. Iron

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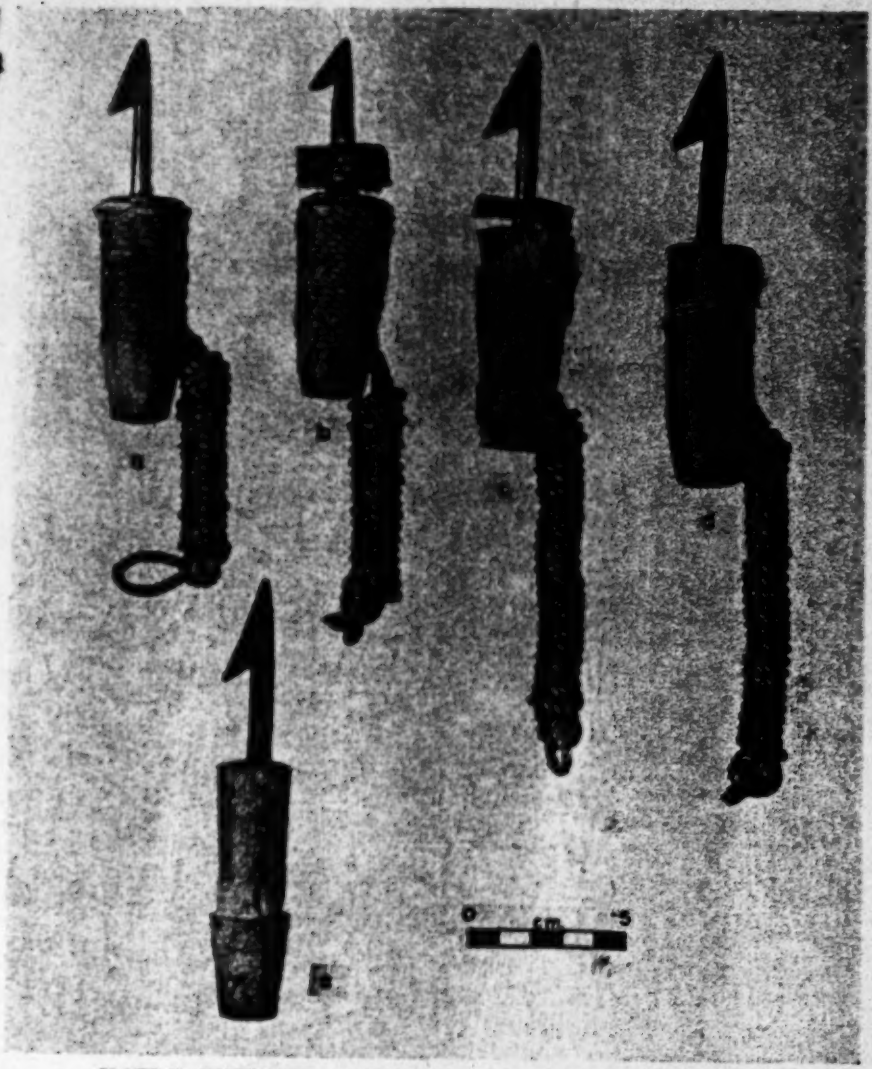

PLATE II: FORESHAFTS MANUFACTURED BY ONE SERI FISHERMAN, FRANCISCO BARNETT

(see Table 1 for specifications)

[Table 1 is on page 367, category 116.- Analyst]

[Facing page 365]

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for the point may come from the transmission of an abandoned car or from flotsam. The wood for the hafting can be mesquite or ironwood, both indigenous in the area; waste from boat construction or other scraps of wood may also be used. Rubber for the gasket may be obtained from a worn automobile tire. The wrapping cord and lead cord are store bought, and mesquite gum is used to seal the hafting.

In manufacturing foreshafts Seri fishermen use three tools: a knife, a hacksaw blade, and a triangular file. The hacksaw blade is used to cut an appropriate length of metal for the point and to rough out the barb; the triangular file is employed to finish the point barb and stem; the tang of the file is used to puncture the hole in the gasket which is to receive the point. The shaping of the hafting and gasket, and the cutting and wrapping of the lead corda, are accomplished with a knife.

With regard to the method of manufacture, all fishermen report essentially the same procedure. They describe the pattern as a series of steps under two headings: (1) shaping and (2) assembling. Two individuals did not mention steps 1c and 2b, and the others considered these two steps to be optional.

1) Shaping
   a) Shaping the metal into a point
   b) Shaping the wood for hafting the point
      α) Shaping the general form
      β) Splitting the form lengthwise and grooving each half to receive the point (see section in Figure 1)
   c) Shaping the rubber for the gasket

2) Assembling
   a) Placing the mesquite gum in the grooved portions of each half of the hafting (see section in Figure 1)
   b) Placing the gasket on the point
   c) Inserting the point base into the hafting and reuniting the split hafting form
   d) Wrapping with the wrapping cord and with it interweaving the lead cord
   e) Refinishing the hafting base to fit the mainshaft socket

Four men were able to explain the foregoing procedure in detail and were in agreement in the following matters. The point is shaped before the hafting because its length determines the length of the latter, and because the diameter of the point base dictates the grooving of the haft. The gasket is shaped after the point and the hafting because the diameter of its hole is determined by that of the point base and its total diameter by that of the hafting. The mesquite gum then secures the point and seals the hafting. Interweaving the lead cord with the wrapping cord secures the former to the hafting.

The amount of time required to complete a foreshaft shows marked variation. This is not primarily a function of the working habits of the artisan. If all the materials are present, the time it takes to make a foreshaft ranges from four to eight hours, but if all the materials are not available, as much as a year may be required. There may, for example, be a considerable lapse of time between the shaping of a point and the shaping of a gasket when material for the

411 461 gasket is not available. If a Seri needs a foreshaft for immediate use he can dispense with the gasket, but all the other materials are necessary to make the tool functional. As a result, a Seri may have one or several foreshafts in the same or in different stages of manufacture (see Plate II),[2] and he may also have a number of shaped or unshaped points or pieces of metal but few finished foreshafts.

411 If an archeologist were to excavate the remains of contemporary Seri culture at some time in the future his observational field would be limited to the results of behavior. Under ideal conditions, the data available to him for reconstructing the turtle fishing complex might include foreshafts, the materials from which and implements with which they were manufactured, and turtle carapaces.

411 184 All 21 finished foreshafts (Plate I),[1] exhibit an obvious general similarity despite the fact that they range in age from one to eight years. Twenty of them have a single barbed point. Plate II,[2] illustrates the general shape of the hafting, the place where the hafting has been split, a mesquite gum sealing, and a refinished hafting base—a combination of features that is exhibited in all 21 foreshafts. The manner in which the lead cord is interwoven with the extension cord is similar in all foreshafts except those in which either cord has been repaired. In nineteen cases (excluding one very long and one very short point), the length of the point beyond the hafting ranges from 4.4 to 6.1 cm. With three exceptions (one long and two short) the length of the hafting ranges from 5.8 to 7.8 cm. In all but two examples the hafting is longer than the point. The difference in length between the hafting and the point above the hafting varies within a range of 0.1 to 3 cm. Thus, with the exceptions noted, the maximal variation with respect to these measurements is small—1.7 cm. for the length of the point above the hafting, 2 cm. for the length of the hafting, and 3 cm. for the difference in length between the hafting and the point above the hafting (see Table 1).[3]

Examination of the three available sets of foreshafts produced by single individuals reveals a smaller range of variation within each set than within the entire collection. In four foreshafts of Juan Moreno the length of the point above the hafting ranges from 4.9 to 5.2 cm., and the length of the hafting from 6.1 to 6.7 cm. The sets produced by Francisco Barnett (see Plate II),[2] and by Miguel Barnett show a comparable restriction in the range of variation. A comparison of the three sets, however, shows that their measurements are similar enough to each other to provide little basis for distinction. The range in length of the haftings of Juan Moreno (6.1 to 6.7 cm.), for example, overlaps that of the haftings made by Francisco Barnett (6.4 to 7.7 cm.).

Variety in the 21 finished products taken as a group, other than that due to differential age and use, is most evident in one particular respect: eight of them lack a gasket. Each owner of foreshafts without gaskets was asked to explain this absence. Two could not or would not give an explanation; five replied that rubber was not available; and one man, Ignacio Molina, stated that he omitted a gasket be-

[1] [facing p. 364] [2] [facing p. 365] [3] [page 367]

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TABLE 1
Foreshaft Specifications

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Manufacturer	Plate Reference	Approx. Age of Artifact	Length of Hafting (Centimeters)	Length of Point (Centimeters)
Ernesto Díaz	Ia	2	6.5	5.3
José Estorga	Ib	6	6.5	5.6
Francisco García	Ic	4	6.5	5.8
Alberto Mendes	Id	5	5.8	5.7
Ignacio Molina	Ie	3	8.7	11.5
Louis Moreno	If	3	7.8	4.8
Ramon Porrales	Ig	3	7.0	4.4
Francisco Barnett	IIa	1	6.8	5.2
	IIb	2	6.4	5.3
	IIc	2	6.8	5.9
	IId	2	7.3	6.1
	IIe	–	7.7	5.8
Miguel Barnett		3	7.8	5.0
		3	6.0	4.9
		5	6.1	4.5
Ernesto Corrales		1	3.1	2.8
(8-year old boy)		1	3.0	4.2
Juan Moreno		7	6.5	5.0
		7	6.7	4.9
		8	6.7	5.2
		7	6.1	5.1

cause he did not believe it would help retard death. This man, interestingly enough, is the nephew of Alberto Molina, whom the Seri believe responsible for having introduced the gasket. The foreshaft produced by Ignacio (Plate Ie) is the most divergent one in the entire collection. It is, for example, the only one in which the point has two barbs and, except for those made by the eight-year-old boy, the only one in which the length of the point above the hafting exceeds that of the hafting. The finished products also show some variation in the source of the rubber used for the gasket and in the kind of wood used for the hafting. Six of the eight gaskets are shaped from an automobile tire, two from scraps of rubber of which the men did not recall the source. Three haftings (Plate Ia, d, g) are made of ironwood, all the others of mesquite, which is easier to obtain than suitable ironwood or nonindigenous woods.

[196]

Discussion

The foregoing example is designed as a paradigm to illustrate how observations on ongoing cultures might be adapted to the problems of archeological reconstruction. It is, of course, imperative to focus on behavior where matter is changed in some way, because it is only in altered matter that behavior is protracted through time. The example is deliberately selected to capitalize on an important area

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of partial overlap between the observational fields of ethnology and archeology. Unlike endeavors which exclusively emphasize those aspects of culture which archeologists cannot learn about (e.g., Thompson 1939), it directs attention toward the archeologically possible.

The analytic unit in the example is the trait complex, with emphasis on persistence and change within it, rather than independent traits and changes in them, which are the kinds of data with which the archeologist often works. Recognition of the relevance of one trait to the other traits in a single complex, or of nonsymmetrical changes in the complex, poses a problem and a challenge for meaningful cultural reconstruction. Though it deals with a common observational field, the example extends that field by providing a series of behavioral linkages, which may conceivably prove useful in the formulation of hypotheses of less restricted scope.

The specific information on fishing and the context in which it occurs can serve as a basis for testing localized hypotheses by analogy. Conceptions about specific phenomena are usually tested by seeking descriptions of cultures which utilize and manipulate their environments in a comparable manner. The fishing complex and its ecological setting are particularly relevant to the archeological interpretation of the New World Archaic and, to a lesser extent, of the Old World Mesolithic.

The quantitative data on similarity and variation among foreshafts, both in the entire collection and in the work of particular individuals as compared with other individuals and with the group as a whole, are of some theoretical value. It is an archeological tenet of major importance that matter altered in accordance with a particular scheme exhibits similarities which allow its grouping into a class. Ideally, such a class should approximate a normal distribution since individual differences, e.g., in manual dexterity, represent variations from a norm or mean. In addition to supporting and amplifying these general notions, the data also confirm the proposition that behavior can be inferred from the quantitative analysis of its results. Thus the four men who independently described the procedure for making a foreshaft agreed that the length of the point determines the length of the hafting, and the finished foreshafts themselves exhibit a constant relationship between the length of the point (as measured from the hafting) and the hafting. More important, such quantitative data, if coupled with similar data from other cultural settings, are capable of being used to develop general statistical models of artifact typology which would facilitate making classifactory decisions based on behavioral realities.

The example provides a feasible guide for the kind of information to be collected from ongoing communities. Feasibility may be measured in two ways: by the amount of time needed to collect the data and by the generality of the guide in terms of the phenomena to which it can be applied. The time required to collect the kind of information indicated is brief in relation to the total time spent by the

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ethnologist in the field, and, used as a guide, the example can be applied to any behavior in which matter is changed. More investigations similar to that offered here are needed as the archeologist turns to interpretation, conceptualization, and synthesis, or to what Kroeber (1957: 193) has called "the larger and long-range movements or developments in global human culture."

NOTE

1. I hope it is not too presumptuous to dedicate this paper to the memory of A. L. Kroeber.

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